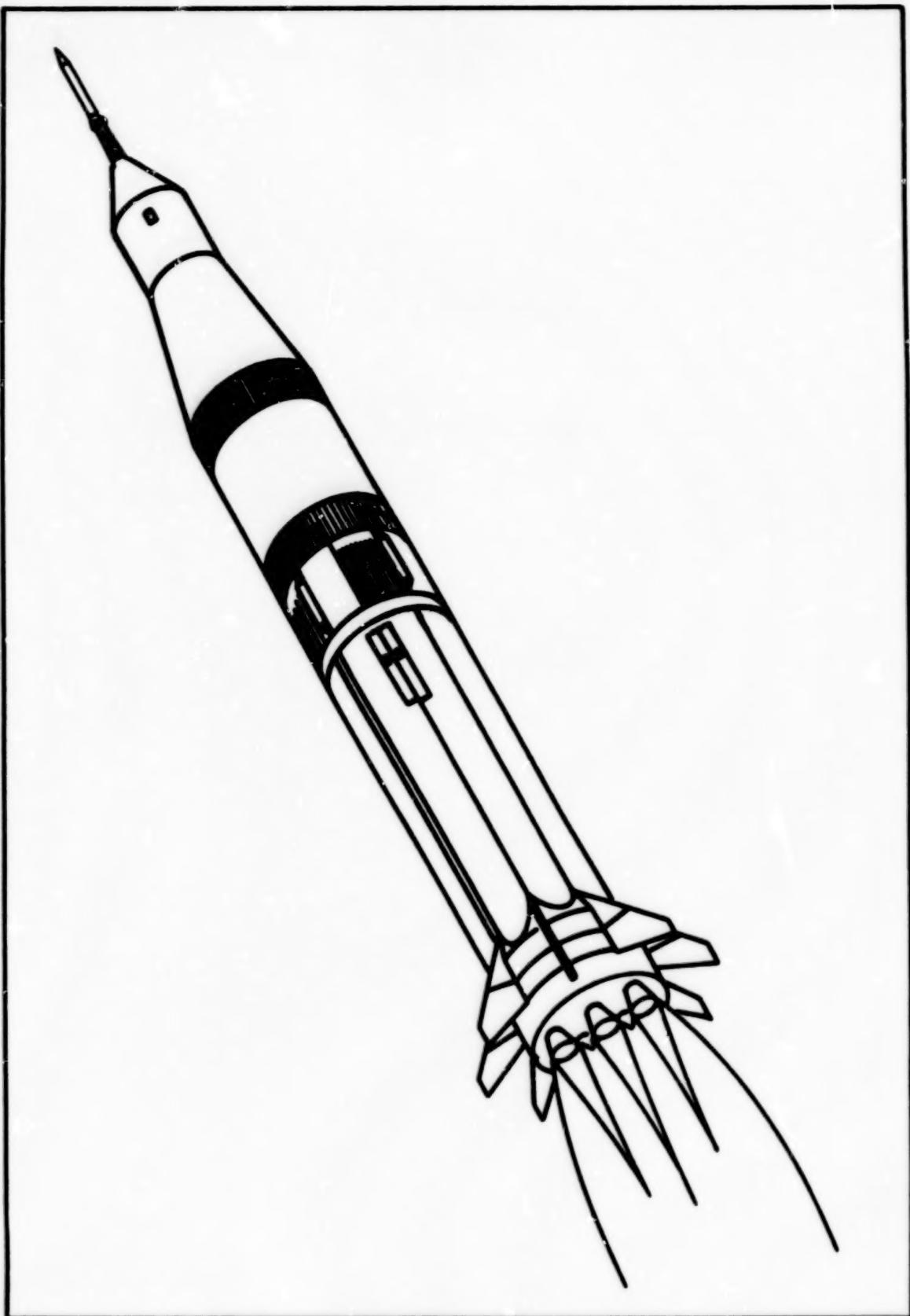


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**SATURN IB**



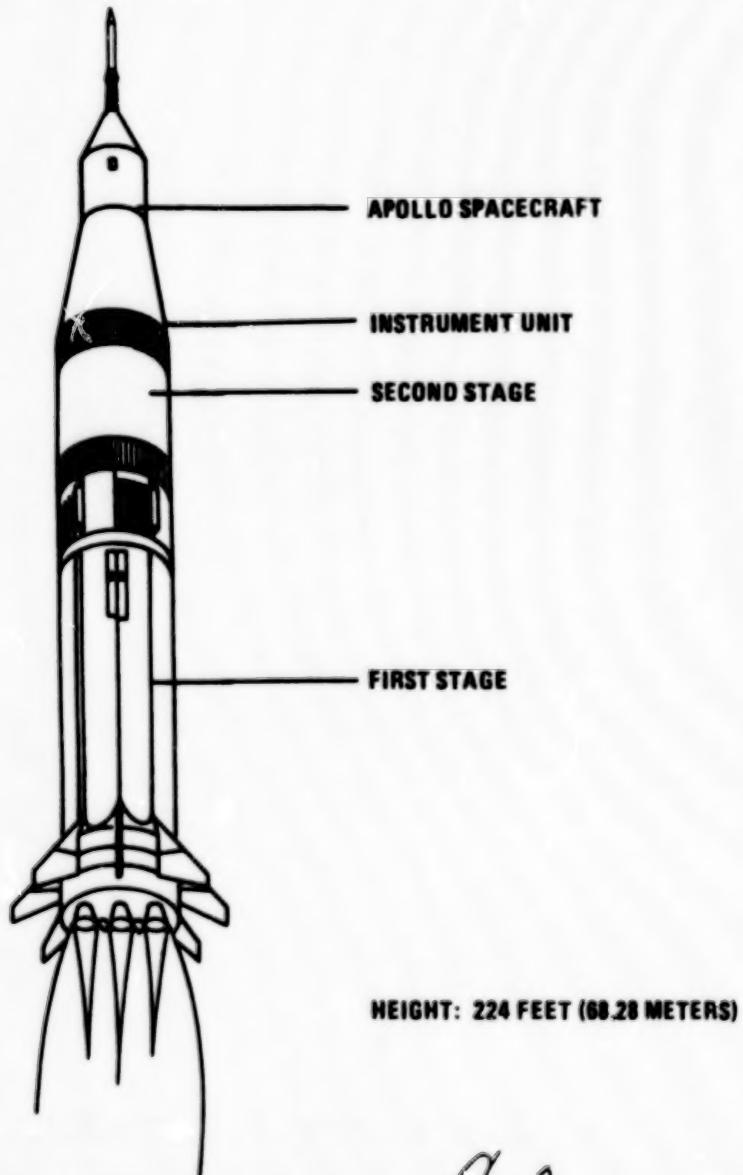
Marshall Space Flight Center  
Huntsville, Alabama

**Elementary Information Sheet**

## THE SATURN 1B

The Saturn 1B had two rocket engine-powered stages and was used to place the Apollo spacecraft into Earth orbit. The Saturn 1B did not have enough power for a trip to the moon. It was smaller than the Saturn V moon rocket. It carried Apollo crews to Earth orbit and carried three crews to Skylab, America's first space station in Earth orbit. Saturn 1B was also used in a program with the Soviet Union. It carried the U.S. Apollo spacecraft to dock with the Russian craft in the Apollo-Soyuz Test Project.

The Marshall Space Flight Center, Huntsville, Alabama, developed the Saturn 1B.

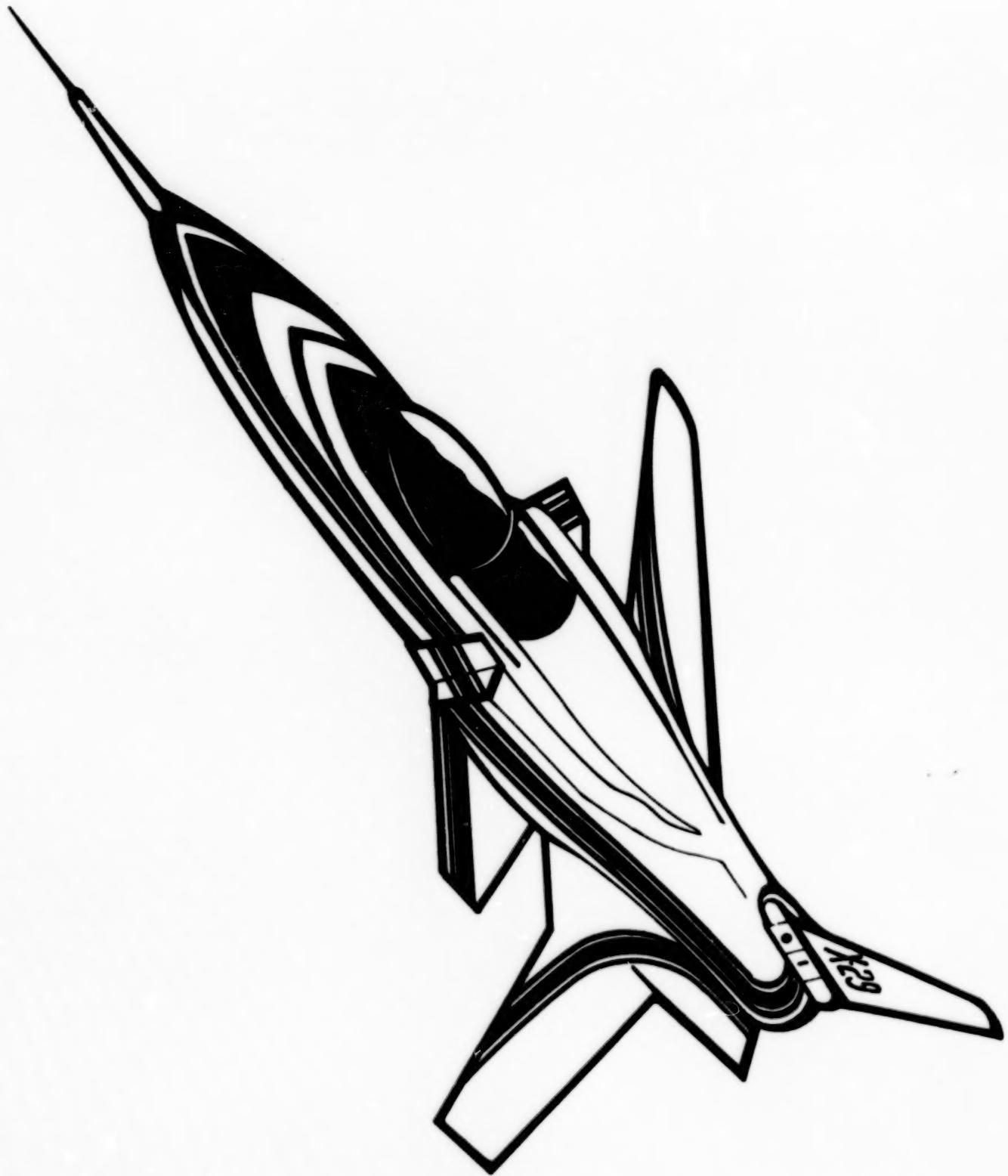


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# X-29

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NASA

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Information Summary Sheet

## X-29

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With its forward-swept wings and small "canards" mounted in back of the cockpit, the X-29 research aircraft may be the oddest looking "X-Plane" ever. But there's a purpose to its strange appearance. Engineers have found that angling the wings forward instead of back makes the X-29 much more maneuverable than other aircraft with traditional swept-back wings. To keep the X-29 in the air, however, sensitive electronic computers must check and adjust the control surfaces 40 times a second.



# XV-15 Tilt-Rotor

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NASA

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Information Summary Sheet

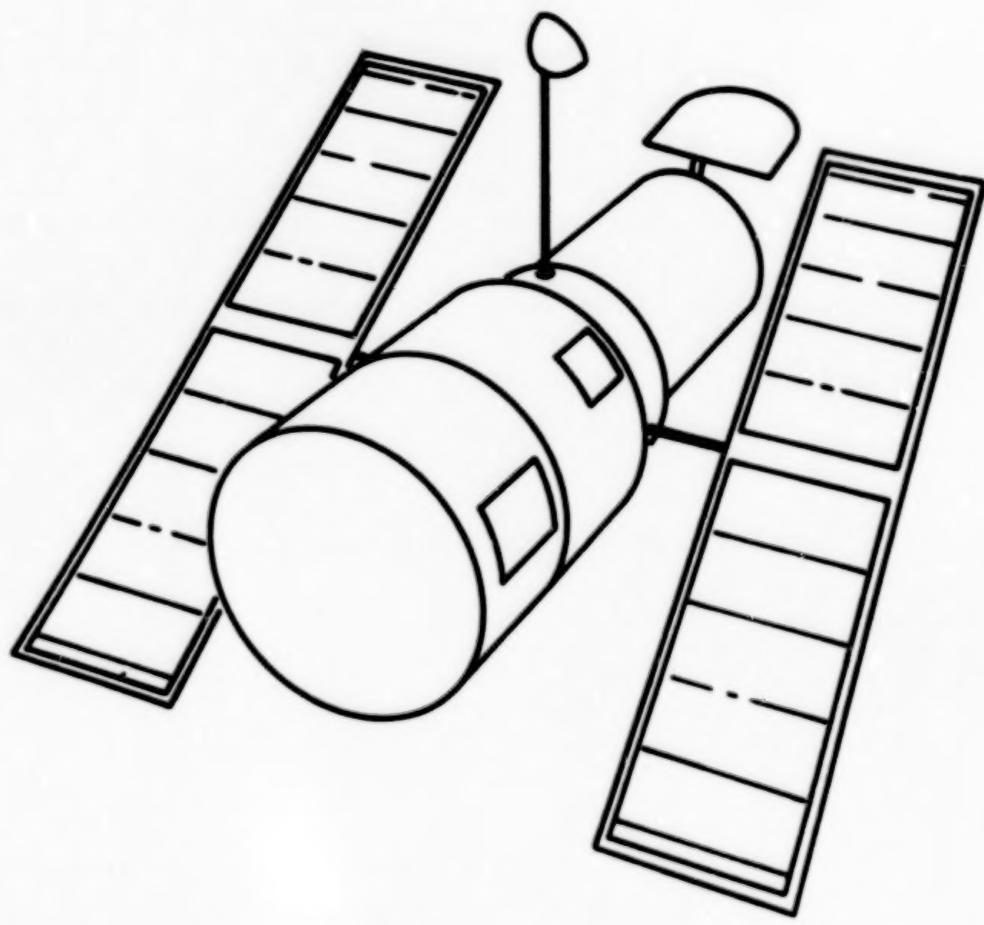
## XV-15 Tilt-Rotor

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NASA's remarkable XV-15 Tilt-Rotor combines the best of both helicopters and airplanes in one vehicle. Using powerful engines mounted at the end of each wing, the XV-15 can take off and land vertically. When the pilot wishes to fly straight ahead, he/she simply tilts the engines to a horizontal position in just 12 seconds and zooms away.

Because they would require little runway space and would be relatively quiet, future aircraft based on the XV-15 might be especially useful to relieve congestion at major city airports.





## THE HUBBLE SPACE TELESCOPE



Marshall Space Flight Center  
Huntsville, Alabama

Elementary Information Sheet

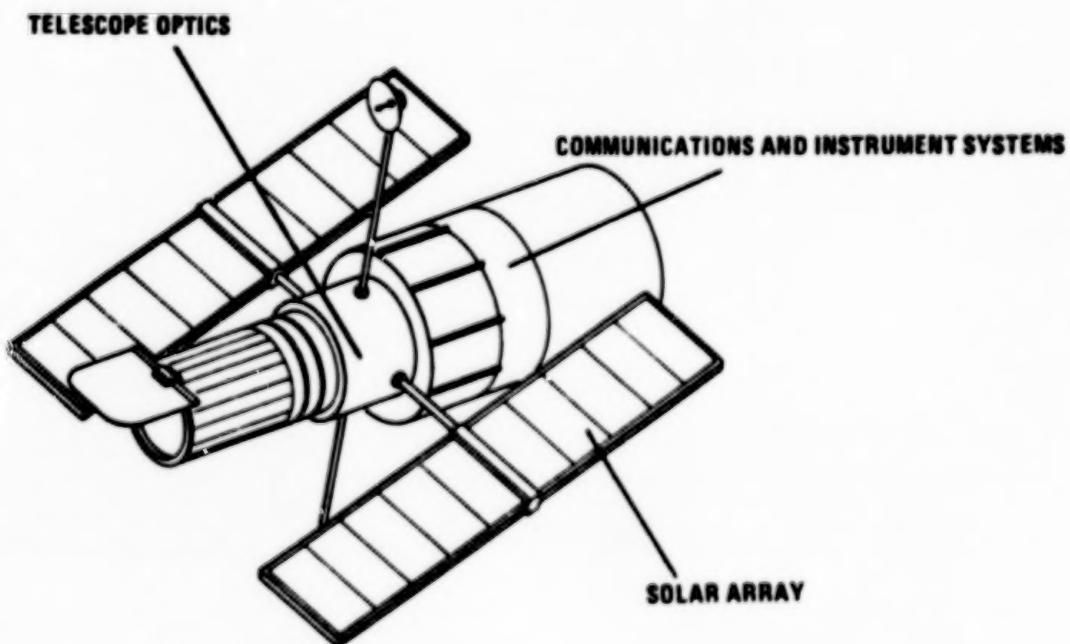
## **THE HUBBLE SPACE TELESCOPE**

**The Hubble Space Telescope will go into space aboard the Space Shuttle. It will be a huge eye in the sky to help us study the heavens.**

**Above the Earth's hazy atmosphere, this space telescope will see planets and stars more clearly. Scientists will be able to see seven times farther into space than ever before.**

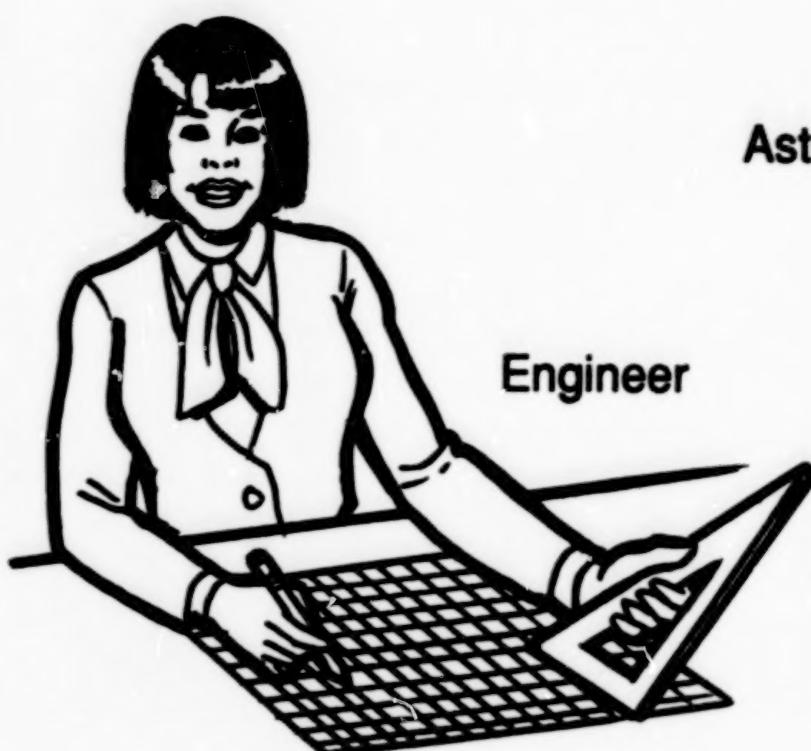
**The Hubble Space Telescope is made up of the telescope, instruments which relay what it sees to people on the ground, and wing-like solar panels which turn the sun's rays into electrical power to run the telescope.**

**NASA's Marshall Space Flight Center in Huntsville, Alabama, is responsible for development of the Hubble Space Telescope.**



# Careers in Aerospace

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Astronaut



Mathematician



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NASA

# Careers in Aerospace

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Have you started thinking about what you would like to do when you grow up? There will be a continued demand for aerospace scientists, engineers, technologists, and technicians. The choices you make in school could affect your career possibilities.

People who study numbers and the relationship between numbers are called Mathematicians; Engineers are problem solvers; Scientists

study how the universe works; and Astronauts explore and conduct research in space.

Teamwork is an important part of the lives of all NASA personnel. A Mathematician, Engineer, Scientist and Astronaut all depend on each other's skill and knowledge to get the job done. These are some kinds of jobs offered at NASA. What would you like to be?

## CREW OF A SPACECRAFT:

Commander  
Pilot  
Mission Specialist  
Payload Specialist

## PHYSICAL SCIENTISTS:

Astronomer  
Chemist  
Geologist  
Meteorologist  
Physicist  
Oceanographer

## LIFE SCIENTISTS:

Biologist  
Medical Doctor  
Physiologist  
Nutritionist  
Psychologist

## SOCIAL SCIENTISTS:

Economist  
Sociologist

## ENGINEERS:

Aerospace/Astronautics  
Chemical  
Civil Biomedical  
Computer  
Electrical  
Industrial  
Environmental

## Materials

Mechanical  
Nuclear  
Petroleum  
Plastics  
Safety  
Systems

## ENGINEERING DESIGNERS:

Architectural  
Electrical  
Mechanical

## MATHEMATICIANS:

Computer Scientist  
Mathematician  
Systems Analyst  
Statistician



# Living in Space

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Sleeping



Eating



Grooming

NASA

# Living in Space

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Astronauts living in space do most of the same things they would do on Earth. They eat, sleep, and attend to personal hygiene everyday, just as we do.

The different forms of the food taken on a Shuttle mission are dehydrated (freeze-dried), thermostabilized cans and sealed pouches, intermediate moisture, natural form, and fresh. By adding hot or cold water, the astronauts can prepare and eat foods like chicken, potatoes, and beans. Some foods can be heated in a conventional type oven, one which looks like a suitcase. Foods like nuts, cookies, and canned fruits are ready to eat "as is."

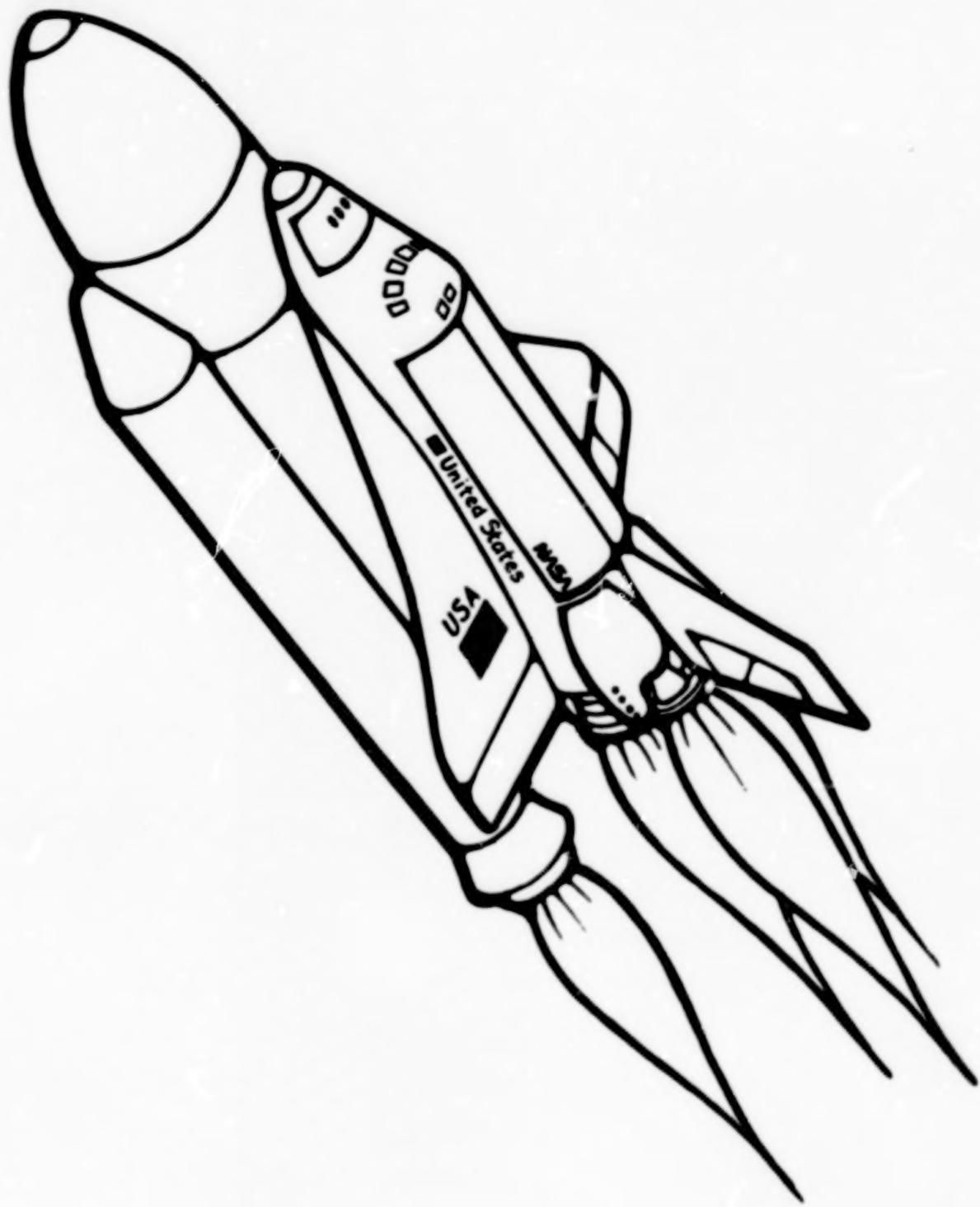
Eating and sleeping in space is different because of "weightlessness." The astronauts have to be careful with their food, or it can float away. They have to strap themselves in place while sleeping, or they could float away, too.

Astronauts brush their teeth, "take sponge baths," and go to the bathroom in space. Waste is placed in a receptacle and brought back to Earth.



# Space Shuttle

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NASA

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Information Summary Sheet

# Space Shuttle

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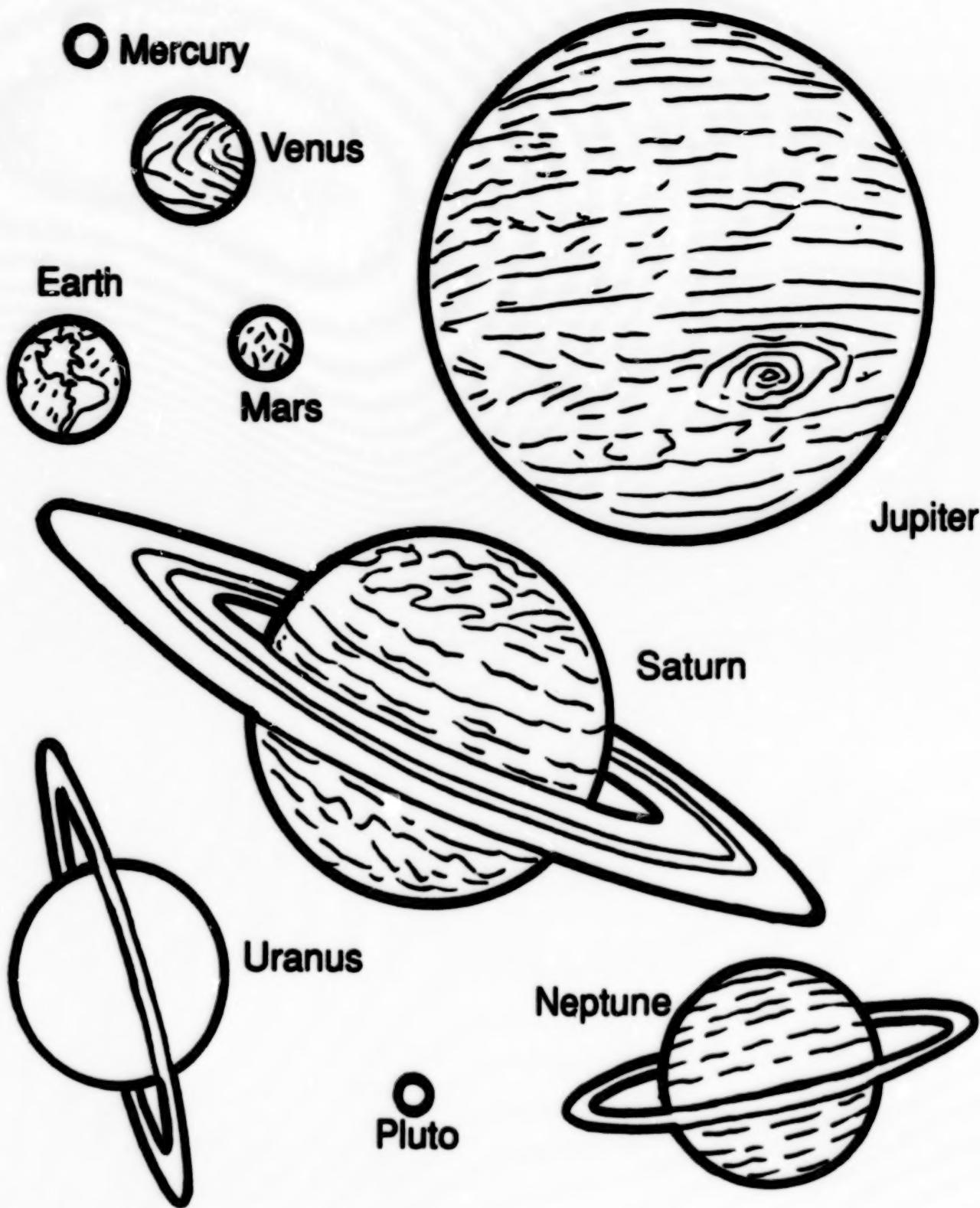
The Space Shuttle is a reusable, aerospace vehicle that takes off like a rocket, maneuvers in orbit like a spacecraft, and lands like an airplane. It is launched into Earth orbit to deploy various types of satellites and to conduct experiments in space.

The Shuttle has four major parts: the orbiter, the solid rocket booster (two of them), the external tank, and the set of three Space Shuttle main engines in the rear of the orbiter. Only the orbiter and the main engines go into Earth orbit. The other parts are for liftoff and powered flight.

Aboard each Shuttle are experiments which in some way will help everyone here on Earth. These experiments are tested in space; the results are brought back to Earth and applied to our everyday lives.



# The Solar System



NASA

Information Summary Sheet

# The Solar System

	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Mean Distance from Sun (miles)	35.9	67.1	92.8	141.3	482.6	885	1,780	2,788	3,658
Period of Revolution	88 days	224.7 days	365 days	687 days	11.86 years	29.46 years	84 years	165 years	248 years
Rotation Period	59 days	243 days Retrograde	23 hours 56 minutes	24 hours 37 minutes	9 hours 55 minutes	10 hours 40 minutes	17.14 hours 16.7 hours	6 days 9 hours 18 minutes Retrograde	
Inclination of Axis	Near 0°	2.6°	23.5°	25.2°	3.1°	26.7°	97.9°	29.6°	?
Inclination of Orbit to Ecliptic	7°	3.4°	0°	1.9°	1.3°	2.5°	0.8°	1.8°	17.2°
Eccentricity of Orbit	.206	.007	.017	.003	.048	.056	.047	.009	.254
Equatorial Diameter (Kilometers)	4,880	12,100	12,756	6,794	142,984	120,536	51,118	49,528	3,000 (?)
Atmosphere (Main Components)	Virtually None	Carbon Dioxide	Nitrogen Oxygen	Carbon Dioxide	Hydrogen Helium	Hydrogen Helium	Helium Hydrogen Methane	Hydrogen Helium Methane	None Detected
Satellites Rings	0 0	0	1 0	2 0	16 1	18 1,000(?)	15 11	8 4	1 ?

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Information Summary Sheet



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